PROJECT OBJECTIVE

TEAM ID	PNT2022TMID50055
PROJECT NAME	Smart Waste Management System For Metropolitan Cities

ABSTRACT:

Traditional waste management system operates based on daily schedule which is highly inefficient and costly. The existing recycle bin has also proved its ineffectiveness in the public as people do not recycle their waste properly. With increase in population and industrialization of nation throughout the globe, waste has become great concern for all of us. With the development of Internet of Things (IoT) the traditional waste management system can be replaced with smart sensors embedded into the system to perform real time monitoring and allow for better waste management. The aim of this research is to develop a smart waste management system using LoRa communication protocol and Tensor Flow based deep learning model. The system also adapt with network environment, to manage all information from waste management. The GPS module is used to locate the system for easy pickup and to track the bin by using GPS and the very bins are provided with the ID name. Object detection and waste classification is done in TensorFlow framework with pre-trained object detection model. Ultrasonic sensor is embedded into each waste compartment to monitor the filling level of the waste. RFID module is embedded for the purpose of waste management personnel identification. As the result we proposed a prototype of smart waste-bin that suitable for many kind of conventional waste-bin.

OBJECTIVE :

The Smart Waste Management System is a very innovative system which will contribute to the path towards Smart City. In our city, we usually observe that the trash bins put at open spots are always over-burden. It forms unsanitary conditions to the city and it is not optimize to solve the problem by currently existing waste management in Malaysia. Also, the traditional way of manually monitoring the wastes in dustbins is a complicated process and excessive more human effort with expenses. To avoid all such situations, a project called Smart Waste Management System is implemented. This system is developed to perform the connectivity of mobile application with Internet of Things (IoT) based dustbins. These dustbins are developed using IoT. IoT is the system of physical devices implanted with software, sensors and network connectivity which empowers these items to gather and trade information. The status of dustbins will be determined using ultrasonic sensor and collected data send through network to the database. The mobile application is used to monitor dustbins and perform route direction to the dustbins. The methodology which applies in developing this project is Adaptive Software Development (ASD). The benefits of this scheme are to reduce used of human resources and efforts together with the enhancement of Smart City. The prototype of this project is evaluated by some users before published to ensure the system can be enhanced in future works. Key words: Smart City, Smart Waste Management, mobile